

Appln No. 09/715,944
Amdt date March 13, 2006
Reply to Office action of January 11, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A hyperlinked annotation data system comprising:
a tuner receiving a broadcast signal including annotation data, the annotation data including graphics data for overlaying a graphics image on a video frame, the graphics image being associated with a video object;
a demodulator in communication with said tuner;
a video decoder in communication with said demodulator;
a display device in communication with said demodulator;
a memory storing the annotation data; and
a central processing unit in communication with said demodulator and said memory,
wherein said memory stores a computer program that determines, when executed by said central processing unit, whether the video object is visible in the video frame, and overlays the ~~controls display of the associated~~ graphics image on said display device responsive to a determination that the video object is visible in the video frame.
2. (Original) The system of claim 1 further comprising:
a viewer interaction device;
wherein said computer program displays said annotation data on said display device in response to a viewer activating said viewer interaction device.
3. (Previously Presented) The system of claim 1, wherein said graphics image is associated with mask information used by said computer program to identify regions on said display device.

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4. (Original) The system of claim 3, wherein said mask information comprises a mask time stamp.

5. (Original) The system of claim 4, wherein said mask time stamp is used by said computer program to display said mask information in temporal relation to a video frame.

6. (Previously Presented) The system of claim 3, wherein said annotation data includes object information associated with the video object.

7. (Original) The system of claim 6, wherein said object information comprises an object time stamp.

8. (Original) The system of claim 7, wherein said object time stamp comprises an expiration time stamp that is employed by said computer program to delete said object information after a specified time.

9. (Previously Presented) The system of claim 6 wherein said object information comprises:

an object mapping table including an object number for the object in the video frame and a corresponding first identifier; and

an object properties table referenced by said first identifier, said object properties table including a first set of annotation data.

10. (Original) The system of claim 9 wherein said first set of annotation data includes an annotation data field and a second identifier referencing a second set of annotation data.

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11. (Original) The system of claim 10 wherein said annotation data field is a title data field and said second identifier references a string including a title of said object.

12. (Original) The system of claim 10 wherein said annotation data field is a menu field and said second identifier references a selector including a set of display identifiers and a corresponding set of action identifiers.

13. (Original) The system of claim 10 wherein said first and second identifiers are never duplicated by the system.

14. (Original) The system of claim 10 wherein said identifier is a variable value.

15. (Previously Presented) A method of using broadcast information comprising hyperlinked annotation data, comprising:

employing a receiver adapted to receive, decode, store and manipulate broadcast information, said receiver having a central processor unit and at least one memory device;

receiving the broadcast information;

decoding said broadcast information to recover graphics data for overlaying a graphics image on a video frame, the graphics image being associated with a video object;

storing said graphics data in a first data queue in said at least one memory device;

determining whether the video object is visible in a video frame; and

overlaying the graphics image on the video frame responsive to a determination that the video object is visible in the video frame.

16. (Canceled)

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17. (Previously Presented) The method of claim 15, wherein said decoding is performed by a first active thread performing operations on said first data queue, and said comparing is performed by a second active thread performing operations on said first data queue.

18. (Previously Presented) The method of claim 17, wherein each mask includes a mask time stamp, the method comprising:

comparing said mask time stamp with a time stamp of a displayed video frame; and
displaying said mask based on a relationship between said mask time stamp and said stamp of said displayed video, wherein the step of comparing said mask time stamp with a time stamp of a displayed video frame commences with a comparison of an earliest mask time stamp with a time stamp of a most recently displayed video frame.

19. (Canceled)

20. (Previously Presented) The method of claim 18, further comprising:
in the event that said mask time stamp corresponds to a frame not yet displayed:

- (a) decoding said associated graphics image into an image buffer;
- (b) checking said mask time stamp to see if said decoded graphics image is to be displayed immediately;
- (c) if said decoded graphics image is to be displayed immediately, displaying said decoded graphics image; and
- (d) if said decoded graphics image is to be displayed at a later time, sleeping for a time calculated to end at the time said decoded graphics image is to be displayed and immediately upon awakening displaying said decoded graphics image.

21-22. (Canceled)

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23. (Previously Presented) The method of claim 1, wherein the determination that the video object is visible in the video frame is based on a visibility indicia included with the annotation data, the visibility indicia indicative of whether the video object is visible in the video frame.

24. (Previously Presented) The method of claim 15 further comprising:
decoding the broadcast information for recovering object information associated with the video object; and
storing the object information in a second data queue in the at least one memory device.

25. (Previously Presented) The method of claim 17, wherein said first thread is capable of adjusting a behavior mask of data and said second thread is capable of adjusting a behavior of object data.

26. (Canceled)